



UNITED STATES DEPARTMENT OF COMMERCE  
Patent and Trademark Office

Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231

SB

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. |
|-----------------|-------------|----------------------|---------------------|
|-----------------|-------------|----------------------|---------------------|

09/529, 192 06/26/00 JUNG

T SPM-290-A

EXAMINER

IM52/1108

ANDREW R BASILE  
YOUNG & BASILE  
3001 W BIG BEAVER ROAD  
SUITE 624  
TROY MI 48084

MARKHAM W  
ART UNIT PAPER NUMBER

1762  
DATE MAILED:

10

11/08/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

|                              |                  |              |
|------------------------------|------------------|--------------|
| <b>Office Action Summary</b> | Application No.  | Applicant(s) |
|                              | 09/529,192       | JUNG ET AL.  |
|                              | Examiner         | Art Unit     |
|                              | Wesley D Markham | 1762         |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- if the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 12 September 2001.
- 2a) This action is FINAL.      2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1 and 3-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1 and 3-22 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 26 June 2000 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

#### Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
  - a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: \_\_\_\_\_

## **DETAILED ACTION**

Acknowledgement is made of applicant's amendment B, filed as paper #9 on September 12, 2001, in which Claim 2 was canceled without prejudice and Claims 1 and 3 – 22 were amended. Claims 1 and 3 – 22 are currently pending in U.S. application serial # 09/529,192, and an Office Action on the merits follows.

### ***Specification***

1. The objections to the specification, including the abstract and disclosure, set forth in paragraphs 1 – 2 of the previous Office Action, are withdrawn in light of applicant's amendment B.

### ***Claim Objections***

2. The objections to Claims 1 – 22, set forth in paragraphs 3 – 4 of the previous Office Action, are withdrawn in light of applicant's amendment B.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Application/Control Number: 09/529,192

Art Unit: 1762

4. The rejection of Claims 1 – 9 and 11 – 22 under 35 U.S.C. 103(a) as being unpatentable over Kashiwaya et al. (USPN 5,595,792), set forth in paragraphs 6 – 10 of the previous Office Action, and the rejection of Claim 10 under 35 U.S.C. 103(a) as being unpatentable over Kashiwaya et al. (1) (USPN 5,595,792) in view of Kashiwaya et al. (II) (USPN 5,935,335) or Hudgens et al. (USPN 4,737,379), set forth in paragraphs 11 – 12 of the previous Office Action, are withdrawn in light of applicant's amendment B and Remarks, filed on 9/12/01.

5. Specifically, independent Claims 1 and 14 require that one or more electrically conducting substrates or substrates that are treated to be electrically conducting form a hollow cathode and that the substrates are/can be treated by a hollow cathode glow discharge. Kashiwaya et al. teach an electrically conductive running length substrate that confines a region of sheet-shaped plasma (Figure 1). The applicant argues that Kashiwaya et al. teach that the plasma is formed in a plasma stream generating device and blown through the gap between the substrate layers. The applicant also argues that Kashiwaya et al. teach applying a bias voltage to the surface of the substrate to promote film forming and not for plasma generation. After careful consideration, the examiner agrees with the applicant on these points. Specifically, Kashiwaya et al. teach that a sheet shaped plasma stream is directed toward and anode from a plasma gun having a cathode (Figure 2 and Col.6, lines 1 – 16) (i.e., part of the plasma gun acts as the cathode, not necessarily the substrate as required by independent Claims 1 and 14).

6. Claims 1 and 3 – 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Echizen et al. (USPN 5,527,391) for the reasons set forth in paragraphs 13 – 17 of the previous Office Action.
7. Claims 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Echizen et al. (USPN 5,527,391) in view of Kashiwaya et al. (1) (USPN 5,595,792) for the reasons set forth in paragraphs 18 – 19 of the previous Office Action.
8. Applicant's arguments filed on 9/12/01 have been fully considered but they are not persuasive. Specifically, the applicant argues that Echizen et al. teach that the electrically conductive substrate is used as an electrode for applying a bias voltage, not a "hollow cathode", and cites passages from Col.26 and 28 of Echizen et al. in support. The examiner agrees that, in some embodiments, Echizen et al. teach that the band-shaped member may serve as a "bias applicator means" (Col.26, lines 28 – 34). However, Echizen et al. also teach that other embodiments are possible for the bias applicator means, such as a bias bar, a plurality of bias bars, or the gas feed means (Col.25, lines 53 – 65). Echizen et al. also teach that the substrate can be grounded when these other bias applicator means are utilized (Col.43, Apparatus Example 3). Importantly, Echizen et al. also teach an embodiment wherein, when the band-shaped member is made of an electrically conductive material, it may be directly used as an electrode for current passage (Col.28, lines 58 – 61). This is not necessarily the same embodiment as using the band-shaped member for the bias applicator means. The examiner would also like to point out that, unlike Kashiwaya et al. (1) who teach a separate plasma stream generating device having a cathode,

Echizen et al. make no reference to such a device and make no reference to a separate cathode in their system at all. By directly using the electrically conductive band-shaped member as an electrode for current passage and enclosing a microwave-supported plasma by the band-shaped member to be treated with the plasma (See Abstract and Figure 1), one of ordinary skill in the art would have recognized that the substrate of Echizen et al. would have acted as a "hollow cathode" as defined by the applicant. As it has been established that the substrate of Echizen et al. would have acted as a "hollow cathode" enclosing a microwave-supported plasma, the substrate surfaces of Echizen et al. would have been treated by a "hollow-cathode glow discharge" as defined by the applicant, as required by amended independent Claims 1 and 14.

### ***Conclusion***

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).
10. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the

Art Unit: 1762

mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wesley D Markham whose telephone number is (703) 308-7557. The examiner can normally be reached on Monday - Friday, 7:30 AM to 4:30 PM.
12. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive Beck can be reached on (703) 308-2333. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-5408 for regular communications and (703) 305-3599 for After Final communications.
13. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Wesley D Markham  
Examiner  
Art Unit 1762



WDM

November 7, 2001

  
SHRIVE P. BECK  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700